

ZERO BEAT

5-83

HAMPDEN COUNTY RADIO ASSOCIATION, INC

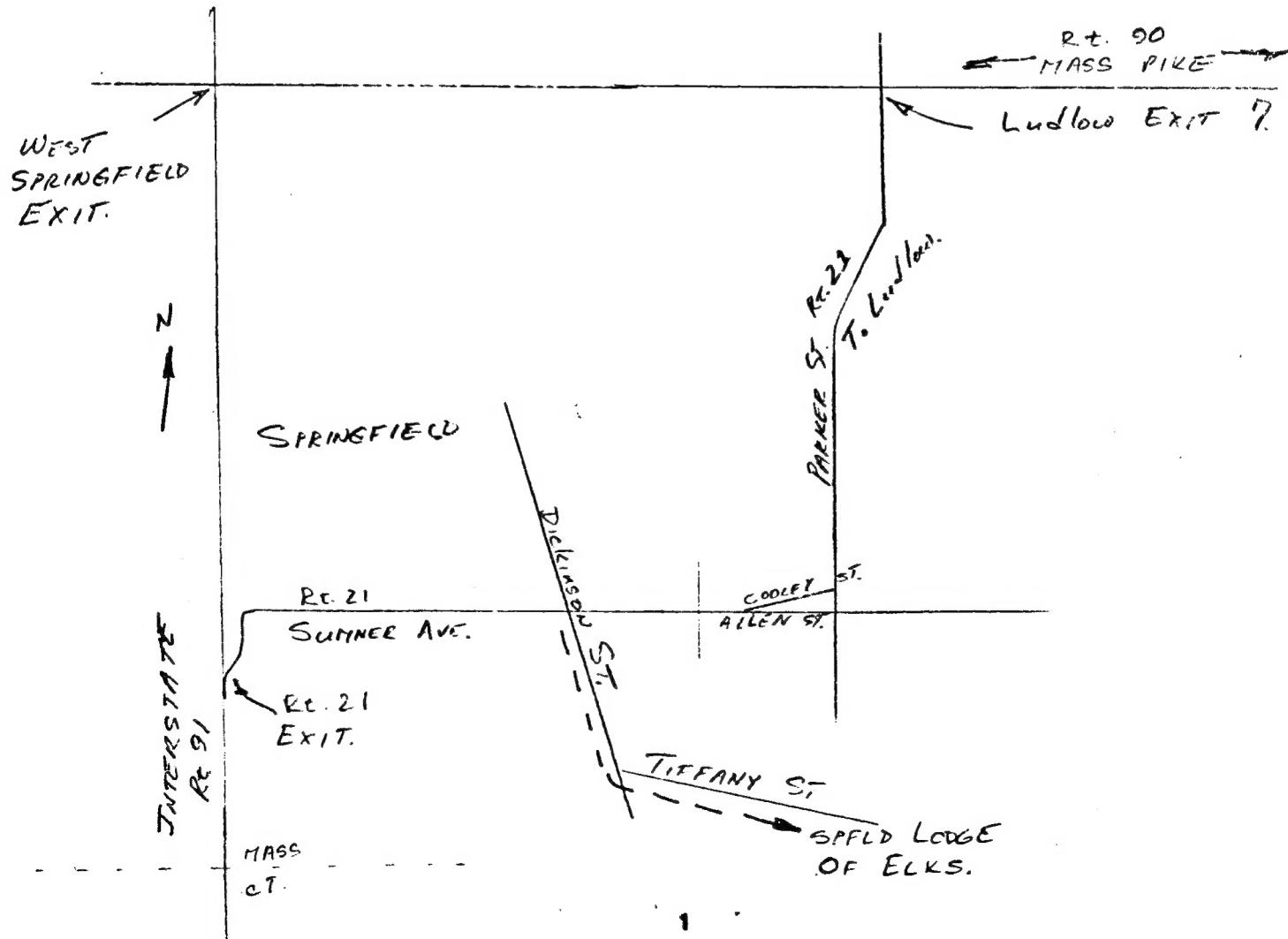
WL-QSL BUREAU

SPRINGFIELD, MASS

ARRL AFFILIATED, 35th YEAR

NEXT MEETING

The next HCRA meeting will be held at the Springfield Lodge of the Elks, 440 Tiffany St., located at the "X" section of Springfield, Mass. on Saturday, May 14, 1983 from 10:00 am to 4:00 pm. The meeting will be our annual flea mearket. Please note the change in meeting place and date. Tables will be avaible \$3.00 each, approximately 100 under cover and 200 outside. Tailgaters will be charged \$3.00 for selling out of their vehicles. Food and drink will be avaible. \$1.00 admission per person will go to the Elk's Children Charities. Along with the abundance of ham radio type items, this year there will also be many computer related articles.



June Banquet

The June meeting will be held at the Feeding Hills Congregational Church on June 3, 1983. Subject of the meeting will be the annual June Banquet highlighted by roast beef dinner at \$7.00 per person and non alcoholic refreshments. Those of you that attended last year remember the generous fare and fine time. Contact your board members and officers for tickets.

HCRA 10 meter net

The weekly HCRA net on ~~thursday~~ evenings at 9:00pm on 28,650 has maintained a steady following each week. The availability of that frequency has prompted the board to encourage all hams to monitor that frequency from 9:00 to 10:00pm daily if you're down in the shack. CQ's aren't necessary---it's just a place to go to have a friendly local chat.

For Sale

| | |
|----------------|-------|
| Rohn 60' tower | \$275 |
| Swan 3 el beam | \$ 35 |
| Ham Rotator | \$ 50 |

Contact: Olaf Passburg, 37 Knollwood Dr., E. Longmeadow, Mass.
413-525-7041

Field Day

KA1GPX and N1PF are slated for 80 meters for Field Day. There are still plenty of openings left for operators and stations. Hope to see you there. Even if you don't plan to operate, please drop by for an impromtu eyeball. WA1CQF will have a new innovative breadboard (or should I say barnboard) tuner which will be put through its paces at this time.

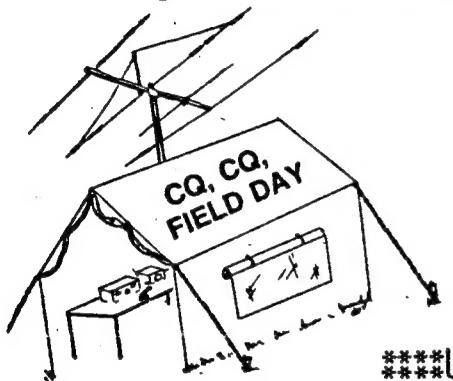
✓ Even with the waning interest in CB, ham radio's image still suffers because of the confusion between the two services. Last Friday The CBS Evening News carried a story about the Kilauea Volcano and local residents using CB radios to coordinate evacuation -- shown on camera, a man with a 2-meter HT. If you are involved in an emergency and the press shows up, take 10 seconds to tell them that you are a ham radio operator and not a CBer. It'll save us all a lot of anguish.

✓ Expansion of the 20-meter phone band (Docket No. 82-83) becomes effective May 22 at 0001 Z. The new phone segments are as follows: 14.150-14.175 MHz, Extra; 14.175-14.225 MHz, Advanced and Extra; 14.225-14.350 MHz, General and above. Remember: these new frequencies are not available until May 22 at 0001 Z.

Tnx ARRL
letter

TIDBITS

Robert Boulay, former Area 4 CD Director, is now the State of Massachusetts Civil Defense Director. Congratulations!...N1NB is on the Mt. Graylock .31/.91 machine when he isn't on the Mt. Tom .34/.94 repeater...January '83 BYTE magazine does a complete review of the Sinclair 1000...WB1DTZ and the Inter-continental Amateur Traffic Net helped the "City of Dunedin" when it called "MAYDAY" after running aground near the Falkland Islands. Owner Richard McBride is in a round-the-world sailing race. The Intercon Net went out to help contact local British Naval vessels in the area to help. Someone had the idea of contacting the "Britania", which was in California at that time. Soon after, a helicopter rescued McBride, got his ship back afloat, and he continued the race. Well done, Intercon Net!...Thank you notes have arrived thanking any and all amateurs who've handled traffic to/from N1BBT, the "State of Maine" vessel owned by the Mass Maritime Academy. You've made a lot of people happy by letting them stay in touch with their families... Apple Computer Net is on 14.320 mhz at 0100 UTC Mondays. (Sunday evening)... Send in your TIDBIT announcements to Zero Beat. We want to hear from you... K1BE is looking for cw ops for Field Day on 20 meters. Everything will be provided, and most of the free time is in the evening...



****UPCOMING HAMFESTS****

17 APR SUN TO CELEBRATE ITS 52ND ANNIVERSARY IN AMATEUR RADIO, THE SOUTH SHORE AMATEUR RADIO CLUB OF BRAINTREE, MASS, WILL HOLD AN *INDOOR* FLEA MARKET AT THE VIKING CLUB, 410 QUINCY AVENUE, BRAINTREE, MASS. FROM 11AM TO 4PM. THERE WILL BE EIGHT FOOT (8') TABLES AVAILABLE FOR \$10.00 EACH (WHICH INCLUDES 1 FREE ADMISSION) AND PAID FOR IN ADVANCE BY SENDING THE APPROPRIATE AMOUNT TO ED DOHERTY, W1MFT/ 236 WILDWOOD AVE, BRAINTREE, MASS. 02184. CHECKS SHOULD BE MADE PAYABLE TO THE SOUTH SHORE AMATEUR RADIO CLUB. CONFIRMATION OF CHECK RECEIPT WILL BE SENT. NO CANCELLATION REFUND AFTER APRIL 14. DOORS OPEN FOR SELLERS AT 10AM. ENTRANCE FEE FOR BUYERS IS \$1.00. PLENTY OF PARKING. ****RAIN OR SHINE**
FOR MORE INFO CALL 617-843-4431 (ED,W1MFT) EVENINGS. [0*H**]

1 MAY SUN THE EASTERN AMATEUR RADIO ASSOCIATION WILL HOLD A FLEA MARKET AND AUCTION AT FUTNAM CONN. (THIS WAS HELD AT THE POINT FREEZE RESTAURANT IN PREVIOUS YEARS) FOR MORE INFO CONTACT RICHARD SFAHL AT 617-943-4420 AFTER 8 PM. [RS*THJ

***** MORE INFO LATER *****

7 MAY SAT THE 10 TH ANNUAL HOSS TRADERS (THE BIGGEST AND BEST) TAILGATE SWAPFEST, TO BE HELD AT DEERFIELD FAIR GROUNDS, DEERFIELD N.H. ADMISSION \$1.00 FOR BUYERS OR SELLERS. FRIDAY NIGHT CAMPING FOR SELF CONTAINED RIGS AT NOMINAL FEE. NOBODY ADMITTED BEFORE 4:00PM FIRDAY. NO COMMISSION OR PERCENTAGE EXCESS REVENUES TO THE BOSTON BURNS UNIT OF THE SHRINER'S HOSPITAL FOR CRIPPLED CHILDREN. LAST YEAR \$2622.75 WAS GIVEN TO THE HOSPITAL. AND THERE WERE ABOUT 3400 IN ATTENDANCE. FOOD AVAIL. TALKIN ON 146.40/147.00 AND .52 DIRECT. [S*WJ]

14 MAY SAT THE HAMDEN COUNTY RADIO ASSOCIATION IS HOSTING AN AMATEUR RADIO AND COMPUTER FLEA MARKET AT THE SPRINGFIELD ELKS LODGE, 440 TIFFANY STREET, SPRINGFIELD, MASS. FROM 10AM TO 4PM. ADMISSION IS \$1.00, TABLES \$3.00, NO RESERVATIONS NEEDED. THERE ARE OVER 100 TABLES UNDER A COVERED PAVILION AND ABOUT 200 TABLES OUTSIDE! ALL COMPUTER CLUBS, COMPUTER STORES, HAM CLUBS AND INTERESTED ELECTRONICS STORES HAVE BEEN INVITED. PLENTY OF FREE PARKING. EASY ACCESS AND FOOD IS AVAILABLE. FOR MORE INFORMATION. CONTACT WA1CQF, GENT LAM AT 413-737-9426. [C*T]

21 MAY SAT '76 FLEA MARKET AND AUCTION, FLEA MATNET 9:00AM TO 12:00 NOON AUCTION NOON TO 5:00PM. STEERES BEACH CLUB, WATERMAN LAKE, GREENVILLE RI. USE I-295 TO EXIT 7B TAKE ROUTE 44 WEST 3.4 MILES. TALKIN ON .16/.76 AND .34/.94 FLEA MARKET SPACE \$3.00 AUCTION 10% COMM. ON ALL SALES, EXCEPT 5% SHOULD THE ITEM SOLD BRING IN EXCESS OF \$50.00. BANK AMERICARD PURCHASES 2% PAID BY THE BUYER. [S*M]



1983-1984 SEASON

Preliminary planning for next year's programs are now under way. If you have anything you'd like to hear/present for a monthly meeting, contact Steve, WALEYF with your ideas. The Board of Directors is always looking for new and interesting ideas that will get the club membership involved! Four tentative topics have been picked, we will participate in the January VHF Sweepstakes, ARRL DX Contest, host an auction and flea market, and myriad other projects. Give us your thoughts!

HAM OF THE YEAR BALLOT

ONLY MEMBERS OF THE HAMPDEN COUNTY RADIO ASSOCIATION MAY VOTE.

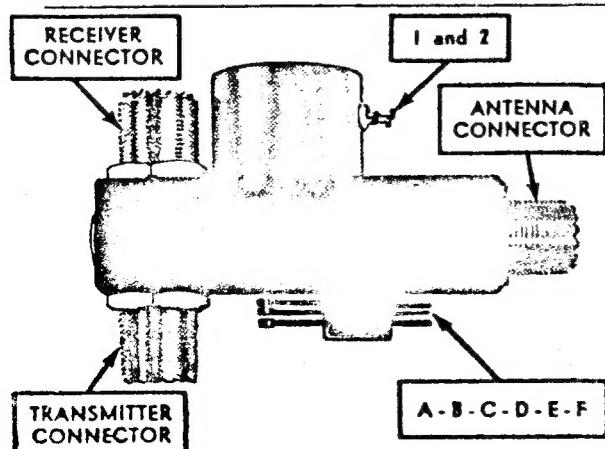
VOTE FOR ONE:

LARRY SOLTZ WB1CJH
 BARRY GOLDWATER K7UGA
 FRANK POTTS WA1RWU
 DICK STEVENS WLQWJ
 PAUL KRESS WA1ZKT
 ELEANORE GRAY KA1GVC
 DICK GOODMAN WB1HIH

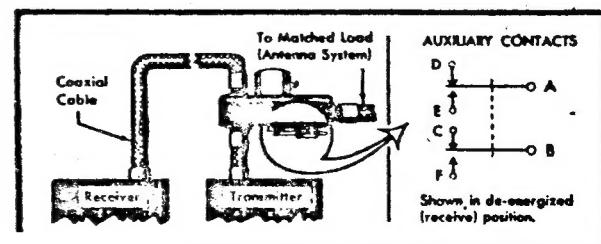
OTHER

(fill in name and call)

IF YOU WILL NOT BE AT THE FLEA MARKET, YOU CAN MAIL THIS BALLOT
IN TO ZERO BEAT c/o GENT LAM 38 PORTER ST., SPRINGFIELD, MASS 01104



CONNECTING
DOW COAXIAL RELAYS



TIDBITS

N1AFY thrilled to see the space suits he works on perform so well during the space walk...AK1C working more and more DX...New phone band expansion on 20 meters is very exciting...WB1HKN bought a touch-tone mic...KA1CPG is president of Provin Mtn Club...KA1GDV wants check ins to the computer info net on the .10/.70 machine, Tuesday evenings at 8 pm...Get your tickets to the June HCRA banquet early!...WA1RWU has been ill, slowly starting to feel better...Field Day '83 is the weekend of June 25th, at the Middlefield Fair Ground. See you there...Bill, KA1EGS, was awarded the Worked-All-Hampden-County award at the April meeting...W1VON is now a silent key, Griffin is missed by all he helped with his vast store of self-taught knowledge...WA1JYB is the proud daddy of a baby girl...W1NPL found a QSL card in a silent key's collection that W1CJK had sent in the early thirties. Bill still had the original card from that ham, too!...W1KK was featured in an article in the "Agawam Advertiser"...

ZERO BEAT is soliciting articles on:

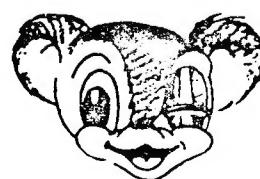
- TRUTH TABLES AND HOW TO READ THEM.
- HOW TO FIGURE OUT THE NEW VHF IDENTIFIER.
- YOUR OPINION OF ANY NEW GEAR YOU'VE PURCHASED.

✓ The newest members in the growing cadre of RFI-causing devices are "touch-controlled" lamps, being sold nationwide by many major companies. These lamps produce headaches to hams operating in the 80- and 160-meter bands. As a bonus, they ruin the whole a-m broadcast band. In theory, the lamps fall under the regulatory scope of FCC Rules Part 15, but until the Commission is aware that the problem is widespread, it seems unlikely that anything can be done. If you are experiencing, or know someone who is experiencing, RFI because of these lamps, let Hq. know. We'll be sure to point out the problem to the FCC.

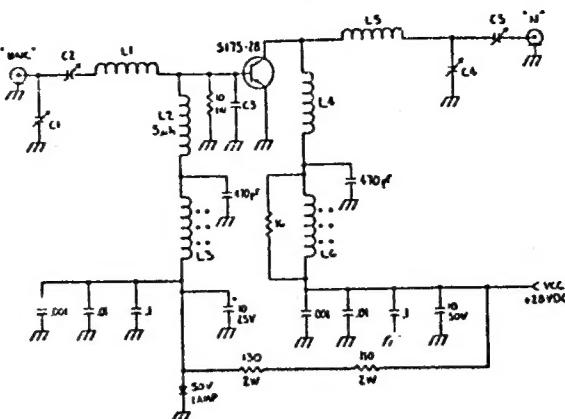
✓ The FCC released a Further Notice of Proposed Rulemaking in which the Commission proposes to adopt the ARRL plan for phone band expansion in the 75, 15, and 10 meter bands. Additionally, the Commission proposes, in response to a petition by KH6XX, (Vol. 1, No. 2), to permit General, Advanced, and Extra Class amateurs in Hawaii and nearby islands to use A3 and F3 emissions in the 7075-7100 kHz segment, in recognition of their distance from the U.S. mainland and their proximity to ITU Region 3. The deadline for comments is July 1, reply comments are due by August 1.

Tnx ARRL
letter

"Quick As A Wink" Printing & Sales Co.
573 Union Street West Springfield, Ma. 01089



50-MHz 100-Watt Output Linear Amp



By Randy Bynum, # WB2SZK

In my desire to improve my station and eliminate those unnecessary tubes and associated screen and filament supplies, I have designed and built a one-stage 100-watt-output 6-meter linear amplifier. It provides about 10 dB gain when used with a 28-Vdc supply capable of about 6 amperes. A drive of approximately 10 watts is required to produce the 100 watts output. This drive level is achieved with the modern solid-state all-mode transceivers presently available on the market.

In my case, the unit is an intermediate amplifier (running at reduced power) which will be used to drive a 3-5002 grounded-grid amplifier. However, 100 watts output on 50 MHz will provide a very respectable signal and is an ideal compromise power level.

The linear is simple to build using standard vhf practices and high-quality components capable of withstanding the high rf circulating currents encountered. Two levels of isolation are used in both the base and collector leads to eliminate any tendency toward self oscillation. The amplifier is perfectly stable even into an open or short circuit. The S175-28 is a flange-mounted device with four leads, each about 0.25 inch wide. A fairly substantial heatsink is required in order to properly cool the device. The heat sink I used is 4 x 6 inches with 6 vertical fins about 1.25 inches high.

The diode should be cemented or clamped to a mounting bolt used to hold the transistor in place. The entire amplifier will fit easily on a 4 x 6 inch board.

Tune-up is very simple and may be done as follows:

- Apply about 13 Vdc through a meter capable of measuring at least 250 mA. With no drive applied the idling current should be about 25-50 mA. If the quiescent current is not within this range, adjust the value of the 110-ohm 2-watt resistor in the base lead. The smaller the resistance, the larger the current.
- Apply drive through a power meter and adjust for minimum reflected power into the base of Q1. (The output should be terminated into a 50-ohm load.)
- Now move the power meter to the output side and connect the 50-ohm load to the output of the wattmeter.
- Again, apply drive and tune the output circuits for maximum output indication on the wattmeter. These adjustments interact, and some care must be used in going from one trimmer to the other until the proper setting is achieved. At this point, about 40 watts should be available with 10 watts drive.

COIL TABLE
L1-2 turns #16 SWG 10
L2-5.2 MURDOX #7C
L3-10 turns #16 QTS-2
L4-8 turns #16 SWG 10
L5-2 turns #16 SWG 10
L6-10 turns #16 QTS-2

CAPACITOR TABLE
C1-ARCO 460
C2-ARCO 460
C3-UNELCO 1000pF
C4-ARCO 465
C5-ARCO 465

e) Apply 28 Vdc and retune the output stage for maximum output and the input stage for best match to the exciter. Output now should be about 100 watts of linear power and ready to connect to the antenna.

f) If available, an ammeter which is capable of 10 A full scale should be inserted in the collector line to check the maximum current being drawn. The collector current, 28 Vdc at 100 watts, should be approximately 6 amperes. Do not attempt to retune the amplifier when fed to the antenna. If your antenna is not 50 ohms, fix the antenna, not the amplifier.

A good substitute for the S175-28 (CTC) appears to be an SD1407 or SD1450 (both have been used successfully) made by Solid State Microwave. All devices seem to exhibit similar parameters, so I therefore make no recommendations as to which device to use. However, I have more experience with the SSM devices.

The amplifier has been known to be unconditionally stable under any conditions that it has seen to date. It has survived an open circuit, a short circuit and an open circuit at the end of various lengths of cable.

Any harmonic or spurious signal was found to be well below the -60 dB required by the FCC at this frequency when tuned up using a 30-dB in-line attenuator into an HP8550B spectrum analyzer. By using the procedures outlined above, the harmonic and spurious content will probably not be optimized but should still pose no problem providing that the driving signal is clean to start with.

Do not attempt to skimp on the Unelco capacitor used in the base circuit or the Arco 460 series trimmer capacitors. Any substitutes may result in circuit drift or instability. Again, don't substitute unless you are familiar with this type construction. It can be very tricky.

A potential modification which I have not tried, for those who use fm or cw only, would be to ground the base through L2 to convert the amplifier to class C operation. This should pose no problems, but it is something that I have never tried. The 10-ohm resistor from base to ground should be removed if class C is desired. But don't remove it if running in linear mode!

Another modification that I am going to try is to parallel two devices with a little more drive to see if I can achieve 200-250 watts out.

I have not laid out a printed circuit board for the amplifier. I have used point-to-point wiring on a copper-clad G-10 board. What I generally do is to build islands from pieces of PC board soldered or cemented to the main board and use the Unelco capacitors at the transistor to support the connections.

I would be interested in receiving comments from those who build the amplifier, particularly in changes made to the design.

The great blind hobby

Now just about everyone knows there are blind radio amateurs. Check into the ACB net on 14.305 some noontime to catch a moment of some good operators who happen to be blind. But did you ever consider that our great pastime is, *itself*, blind?

Take a look at the picture of Dr. Tom Linde "nosing" out some code on his keyboard. Who would ever expect that the crisp, fast, accurate CW on the low end of 20, signing "KC6L" would be coming from a nose! What's more important — who cares? You see, it doesn't make a whit of difference what you look like, or what you've got (or haven't got) to operate with. What does count is *how* you use what you've got. And in the HANDI-HAM System, we've got some pretty innovative people.



Dr. Tom Linde, KC6L "noses" out some code on his keyboard, as Courage Center staff member Laurie Skiba looks on.

Like, for example, Joe B. from Alabama. Joe is non-verbal — can't talk. Let me share a bit of recent letter from Joe with you:

"Yes, I'm very active on the CW nets here in Alabama, as well as a few out-of-state nets. I am even active on a couple of SSB nets! I don't let not being able to talk stop me. I just check in on CW! I took over as net manager on the Novice net. I'm NCS on AEND, and representative to RN5. I'm also in Army MARS, so you can see what Ham Radio means to me."

Now, that's what I call determination! There's a fellow who really enjoys this great avocation, and is providing a valuable service to his community to boot. And I'll just bet that most of the people he runs across on these nets don't know the nature and/or extent of his handicap. You see — it doesn't matter!

Everyone's going to war with everyone else . . . or so it seems these days. In this crazy political morass of international intrigue, we often forget that peopling these nations which are angry at each other are — *PEOPLE!* Diplomacy works when two people can sit down, privately,

together, and talk out their differences. Diplomacy works because of *communications*.

Face it — we're in the communications business. Whether it's handling a piece of traffic for someone overseas or just chewing the rag with another amateur, we all have a message to convey. That message could be as important as a health and welfare notice to a family of an earthquake victim. Or it could be as (seemingly) mundane as a description of your shack, or what you did this morning, or that your kid has the flu. The message you send over the air about yourself is as important as any you'll ever handle.

One of the truly great things about Amateur Radio is that you are able to project your personal message about yourself without the bias of a face-to-face encounter. That means, the message which tells the real story of you comes through without having to fight through a whole bunch of preconceived notions, prejudices or biases. For many of our HANDI-HAM members, getting on the air is the first time in their lives that they are able to become involved with another person without having the barrier of being identified as a handicapped person come in the way. What a neat thing!

Perhaps when we can all be recognized for what we do, what we contribute, and what we are — without being scrutinized for what we look like — well, things just gotta be better!

By the way, did you know that hardly ever . . . No, let me say it like this — In this job as Director of the Courage HANDI-HAM System, I'm answering the phone a hundred times a day, writing reams of letters and speaking to scores of groups. Did you know that *hardly ever* has anyone asked — over the phone, in a letter, or on the air — if I'm handicapped? By golly, here in Amateur Radio, it just doesn't matter, does it??!



Tips for indoor antennas

1. Install a ground system to a cold water pipe or ground rod.
2. Use a resonant antenna such as a dipole fed with RG-58 or 59.
3. Preferably, install the dipole in the attic, away from large metal objects (insulate antenna ends to prevent high voltage sparks). Otherwise, suspend the antenna from the wall or ceiling (behind a bookcase is a nice hidden place).
4. Route coax through a closet hole or alongside an air duct to rig.
5. Install several antennas at once to minimize attic work.
6. If living in an apartment, do antenna work covertly. Pre-dawn, quiet attic work is necessary to conceal your antenna farm.
7. Use an antenna tuner if necessary, but remember, resonant antennas are better.
8. Use a low-pass filter to reduce harmonic-causing TVI. (Other types of TVI may be present even with a filter.)
9. Consider not advertising your radio station by resisting the urge to get ham license plates for your car.
10. Develop a QRP operating procedure: listen a lot, call strong stations, and/or use CW. Participate in contests.

Using these tips (except #9!), Richard Doering, WA6CFM has contacted many stations. Antennas included monobanders on 10, 15, 20 and 40M (dipoles!). On a recent weekend, during the worldwide Radiosport contest using 100 watts out on SSB to indoor dipoles, the following countries were contacted: Spain, Portugal, Nicaragua, Italy, Czechoslovakia, Mexico, Peru, Finland, Canada, Haiti, Guantanamo Bay (U.S.), Alaska and Hawaii, Hungary.

A week later, a 20-meter W8JK antenna (two phased dipoles) was installed and a little gain and improved side-lobe rejection was noticed. Multi-band operation was hoped for but not obtained.

— Argonne ARC, IL

TNX WORLD RADIO



"The antenna here, OM, is a pair of long Johns"

FREQUENCY ALLOCATIONS FOR POPULAR AMATEUR BANDS
All in Megacycles. "X" indicates no privileges.

May 22, 1983

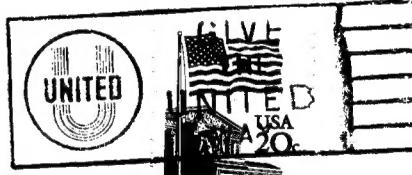
| CLASSES→ | NOVICE | | TECHNICIAN | | GENERAL AND CONDITIONAL | | ADVANCED | | EXTRA | | |
|-----------|--------------|----|----------------|----------------|-------------------------|------------------------------------|-----------------|------------------------------------|-----------------|----------------|-----------------|
| | BANDS ↓ | CW | PHONE | CW | PHONE | CW | PHONE | CW | PHONE | CW | PHONE |
| 80 METERS | 3.7 to 3.75 | X | X | X | | 3.525 to 3.775 and 3.83 to 4.0 | 3.89 to 4.0 | 3.525 to 3.775 and 3.8 to 4.0 | 3.8 to 4.0 | 3.5 to 4.0 | 3.775 to 4.0 |
| 40 METERS | 7.1 to 7.15 | X | X | X | | 7.025 to 7.15 and 7.225 to 7.3 | 7.225 to 7.3 | 7.025 to 7.3 | 7.15 to 7.3 | 7.0 to 7.3 | 7.15 to 7.3 |
| 20 METERS | X | X | X | X | | 14.025 to 14.2 and 14.275 to 14.35 | 14.225 to 14.35 | 14.025 to 14.35 | 14.175 to 14.35 | 14.0 to 14.35 | 14.150 to 14.35 |
| 15 METERS | 21.1 to 21.2 | X | X | X | | 21.025 to 21.25 and 21.35 to 21.45 | 21.35 to 21.45 | 21.025 to 21.25 and 21.27 to 21.45 | 21.27 to 21.45 | 21.0 to 21.45 | 21.25 to 21.45 |
| 10 METERS | 28.1 to 28.2 | X | X | X | | 28.0 to 29.7 | 28.5 to 29.7 | 28.0 to 29.7 | 28.5 to 29.7 | 28.0 to 29.7 | 28.5 to 29.7 |
| 6 METERS | X | X | 50.1 to 54.0 | 50.1 to 54.0 | | 50.1 to 54.0 | 50.1 to 54.0 | 50.0 to 54.0 | 50.1 to 54.0 | 50.0 to 54.0 | 50.1 to 54.0 |
| 2 METERS | X | X | 145.0 to 148.0 | 145.0 to 148.0 | | 144.0 to 148.0 | 144.1 to 148.0 | 144.0 to 148.0 | 144.1 to 148.0 | 144.0 to 148.0 | 144.1 to 148.0 |

ZERO BEAT

C/O GENT LAM WA1CQF

30 PORTER STREET

SPRINGFIELD, MASS 01104



TO:

AC1T E Y 10/83

FIRST CLASS MAIL

MAY 1983